

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A therapeutic pad system comprising:

a bladder defining a flow space for a fluid, the bladder having a distal portion with an inlet port into the flow space, and a proximal portion with an outlet port from the flow space;

a pump disposed in a fluid circuit with the bladder, the pump operable to circulate a fluid through the bladder, providing the fluid through the distal inlet port and receiving the fluid from the proximal outlet port;

a flexible liner adapted to wrap about the bladder, the liner having a plurality of compressible channels; and

a binder adapted to wrap about the flexible liner, the binder having a plurality of elastic straps.

2. The system of Claim 1, wherein the compressible channels are substantially filled with foam pieces.

3. The system of Claim 1, wherein the bladder is adapted to be secured about a portion of the leg of a user.

4. The system of Claim 1, further comprising a thermal modulation unit for controlling the temperature of the circulated fluid.

5. The system of Claim 4, wherein the bladder further comprises a plurality of flow directing blockages for directing the flow of the fluid through the bladder.

6. The system of Claim 5, wherein the flow directing blockages comprises a plurality of seal lines, and wherein the seal lines are oriented to direct the fluid flow to generally align with the direction of the user's lymph flow.

7. The system of Claim 4, wherein the thermal modulation unit is a heat exchanger adapted to cool the circulated fluid to a desired temperature.

8. The system of Claim 7, wherein the heat exchanger is operable to cool the circulating fluid to a temperature between 32 degrees Fahrenheit and 70 degrees Fahrenheit.

9. The system of Claim 4, wherein the thermal modulation unit heats the circulating fluid.

10. The system of Claim 8, further comprising a control system for controlling the rate of flow of the fluid to the bladder.

11. The system of Claim 10, wherein the control system also controls the temperature of the fluid.

12. The system of Claim 1, wherein the pump is adapted to provide a pulsed fluid flow to the inlet port of the bladder, such that a higher fluid pressure is periodically supplied to the inlet port.

13. The system of Claim 12, wherein the pulsed fluid flow has a duration that is approximately equal to the transit time for the fluid through the bladder.

14. The system of Claim 1, wherein the therapeutic pad comprises a plurality of bladders, each bladder having an inlet port and an outlet port, and wherein the pump is operable to provide fluid under pressure to each of the inlet ports.

15. The system of Claim 14, further comprising a control system and wherein the control system is adapted to selectively control which of the inlet ports of the plurality of bladders receives fluid from the pump.

16. The system of Claim 10, further comprising a portable power supply, and wherein the control system and portable power supply are disposed in a console.

17. The system of Claim 1, wherein the fluid comprises a mixture of about 80% by volume of deionized distilled water and about 20% by volume of isopropyl alcohol.

18. The system of Claim 1, wherein the therapeutic pad system is adapted to substantially cover a shoulder of a user, the bladder including flow deflection means that are adapted to direct the flow of the fluid proximally and generally along a lymphatic pathway through the shoulder.

19. The system of Claim 18, wherein the bladder comprises a first bladder portion having a first inlet port and a first outlet port, and a second bladder portion having a second inlet port and a second outlet port, wherein the first and second bladder portions are not in direct fluid communication.

20. A therapeutic pad system for treating edema, the system comprising:  
a flexible bladder having a distal end and a proximal end, an inlet port disposed near the distal end of the bladder, and an outlet port disposed near the proximal end of the bladder;  
a fluid circulation assembly attached to the inlet and outlet ports of the bladder for circulating a fluid therethrough;  
a liner adapted to receive the flexible bladder, the liner having a soft outer shell defining a closed volume, wherein the closed volume is filled with foam pieces;  
a binder adapted to receive the liner and the bladder, the binder having a plurality of flexible straps for securing the system to a user.

21. The therapeutic pad system of Claim 20, wherein the liner is shaped to be wrapped about the bladder when the bladder is wrapped about a user.

22. The therapeutic pad system of Claim 20, wherein the bladder is adapted to be fastened generally about a user's ankle.

23. The therapeutic pad system of Claim 20, further comprising a thermal modulation unit for controlling the temperature of the circulated fluid.

24. The system of Claim 23, wherein the bladder further comprises a plurality of flow directing blockages for directing the flow of the fluid through the bladder.

25. The system of Claim 24, wherein the flow directing blockages comprise a plurality of seal lines, and wherein the seal lines are oriented to direct the fluid flow to generally align with the direction of the user's lymph flow.

26. The system of Claim 23, wherein the thermal modulation unit is a heat exchanger adapted to cool the circulated fluid to a desired temperature.

27. The system of Claim 26, wherein the heat exchanger is operable to cool the circulating fluid to a temperature between 32 degrees Fahrenheit and 70 degrees Fahrenheit.

28. The system of Claim 23, wherein the thermal modulation unit heats the circulating fluid.

29. The system of Claim 20, further comprising a control system for controlling the rate of flow of the fluid to the bladder.

30. The system of Claim 29, wherein the control system also controls the temperature of the fluid.

31. The system of Claim 20, wherein the fluid circulation assembly is adapted to provide a pulsed fluid flow to the inlet port of the bladder, such that a higher fluid pressure is periodically supplied to the inlet port.

32. A method for treating edema comprising the steps of:

wrapping a portion of a body to be treated with a bladder having a distally disposed inlet port and a proximally disposed outlet port, wherein a fluid is circulated through the bladder, entering the bladder through the inlet port and exiting the bladder through the outlet port;

wrapping the bladder with a liner comprising a soft outer layer defining a container having a plurality of enclosed channels, the enclosed channels being filled with foam pieces;

affixing the liner compressively about the user with a binder that is adapted to wrap about the liner; and

selectively cooling the fluid circulated through the bladder.

33. The method of Claim 32, wherein the therapeutic pad is adapted to substantially cover an ankle of the user.

34. The method of Claim 32, wherein the bladder includes a plurality of flow directing blockages therein.

35. The method of Claim 34, wherein at least some of the flow blockages are heat seal lines that are oriented to direct the fluid flow through the bladder in a direction generally aligned with the direction of the user's lymph flow.

36. The method of Claim 34, wherein the fluid is cooled to maintain the temperature of the circulating fluid between 32 degrees Fahrenheit and 70 degrees Fahrenheit.